FAS – Office of Global Analysis (OGA)
United States Department of Agriculture (USDA)
International Operational Agriculture Monitoring Program

USDA Foreign Agricultural Service

Syria: Crop Progress Report

MY 2010/11

March Summary **March 31, 2010**

(1) Above normal precipitation in the MY 2010/11 winter grain growing season has helped create the best grain growing conditions in recent years, especially when compared to the drought-affected crops of the past two seasons. Wheat and barley crops are showing unusually strong development in all provinces of the country. Major rainfed crop regions which normally have thin crop stands and low yield potential are doing extremely well, with very dense and vigorous crop vegetation evident in late March. Warm temperatures have also hastened crop growth rates, with most areas showing crop development a full month ahead of average. Water supplies are recovering from the previous years of drought, with increases in river and spring flows reported. Nationwide, it is evident that a major resurgence in grain production is underway, with satellite-derived vegetation analysis pointing to record crop production. A continuation of favorable rainfall and adequate irrigation supplies remain crucial to realizing the potential of winter grain production throughout Syria this year, however at this point the overall outlook is extremely favorable.

(2) Cumulative rainfall in March has been near or above normal throughout the major grain growing provinces of Syria, with the exception of small parts of northwestern Aleppo (Halab). Season-to-date cumulative rainfall is well above normal through the country with particularly high totals in central and south Deir ez-Zor and central Ar-Raqqah. Beneficial rainfall over eastern Turkey continues to provide ample irrigation water to the irrigated croplands in Ar-Raqqah and Al-Hassakah (Figure 25). The minor winter grain producing provinces of As Suwayda, Dar'a, Damascus, Lattakia and Quneitra have experienced rainfall of over 200% of normal in some areas (Figures 2 and 3). This had led to extremely favorable conditions for crop development in both rainfed and irrigated regions. Subsurface soil moisture in the major winter grain growing provinces remains high though prolonged above normal temperatures have lowered surface soil moisture significantly this month (Figures 4 and 5). In light of the recent heat wave, continued rainfall will be required in early to mid-April to maintain crop yield potential.

(3) The temperature regime in March was much-above normal, with early spring heat wave conditions prevalent across much of the Middle East. Temperatures averaged 3-10 degrees Celsius above normal over most of the country (Figure 6). These high temperatures have significantly reduced surface soil moisture and hastened overall crop development.

(4) A review of satellite-derived vegetative index data (NDVI) indicates that winter grain crops are showing vigorous development throughout the country compared to both the 6-year average and last year (Figures 7 -15). This is especially true in the major irrigated regions in eastern Aleppo, northern Ar-Raqqah, northwestern and northeastern Al-Hassakah. Vegetation index (NDVI) time-series data confirms that crop development is much better than the past few years and is ahead of schedule. It also indicates that record crop yields are possible in many regions. A few exceptions do occur, for example, scattered croplands in northern Aleppo, Idlib and Hama are not as green as last year but show improvement over the 6-year average. These areas were displaying robust

development last month, and are likely to be maturing ealier than last year (thus the lower NDVI in late March than at the same time last year). In comparison, croplands directly north of Lake Jabboul in Aleppo and extending through northern Ar-Raqqah and Al-Hassakah show intense greenness and vegetative development. In the south, croplands in Quneitra, Dar'a and As Suwayda show robust green-up with the exception of a small region near Damascus. The overall outlook for winter grains is excellent, as peak NDVI values, signaling peak crop development, has not yet been reached in many areas.

(5) A MODIS NDVI time series analysis indicates average crop development is a full month ahead of the benchmark year MY2006/07, which was considered a season with a normal development pattern (Figure 20). MODIS satellite imagery from March 21st 2010 confirms the early green-up when compared with imagery from the same time last year (Figures 21- 23). Faster than normal crop development is likely due to extremely favorable rainfall and unseasonably warm temperatures. Though crop development is ahead of schedule, with harvest also likely to be early this year, Syria appears to be on track for record yields for winter wheat and near-record yields for barley. Further analysis of the NDVI, temperatures and rainfall in the coming weeks will help to determine the actual magnitude of winter crop yields.

(6) Digital Globe Quickbird multispectral satellite imagery taken on April 1st 2009 and March 22nd 2010 over northeastern Al-Hassakah, south of Ash Sha 'faniyah, illustrates that the crop canopy is much denser and crop development is much stronger than last year (Figure 24).

(7) The NOAA Climate Prediction Center's 7-day precipitation forecast indicates light to moderate rainfall in northeastern Al-Hassakah, northwestern Aleppo, and Idlib, with the rest of the country remaining dry (Figure 26).

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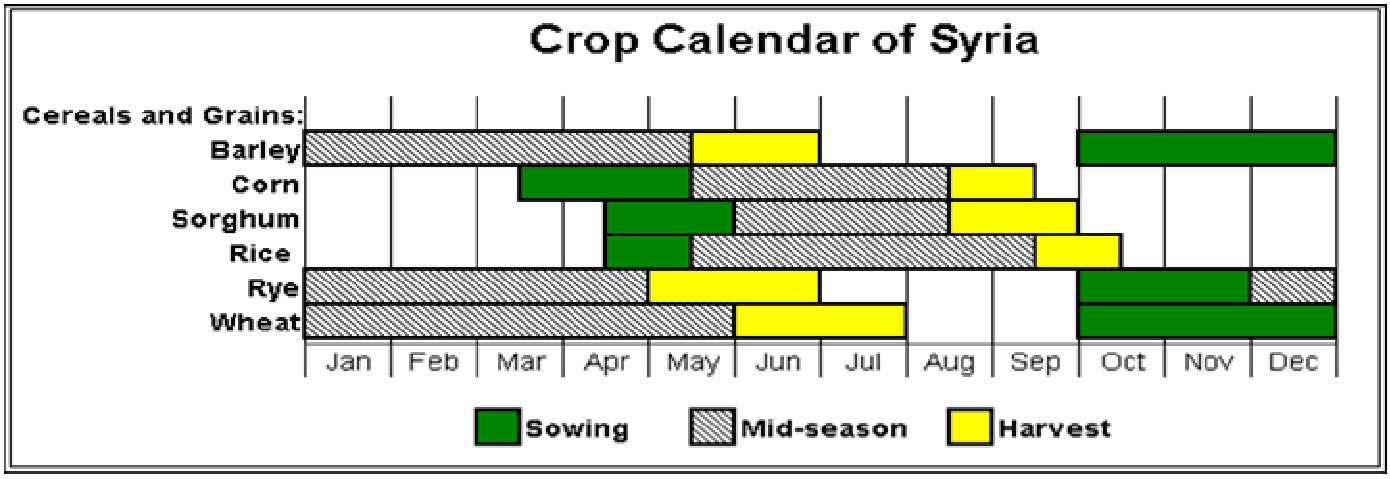

Figure 1. Crop Calendar of Syria. *Data Source: USDA/FAS/PECAD, Crop Explorer*

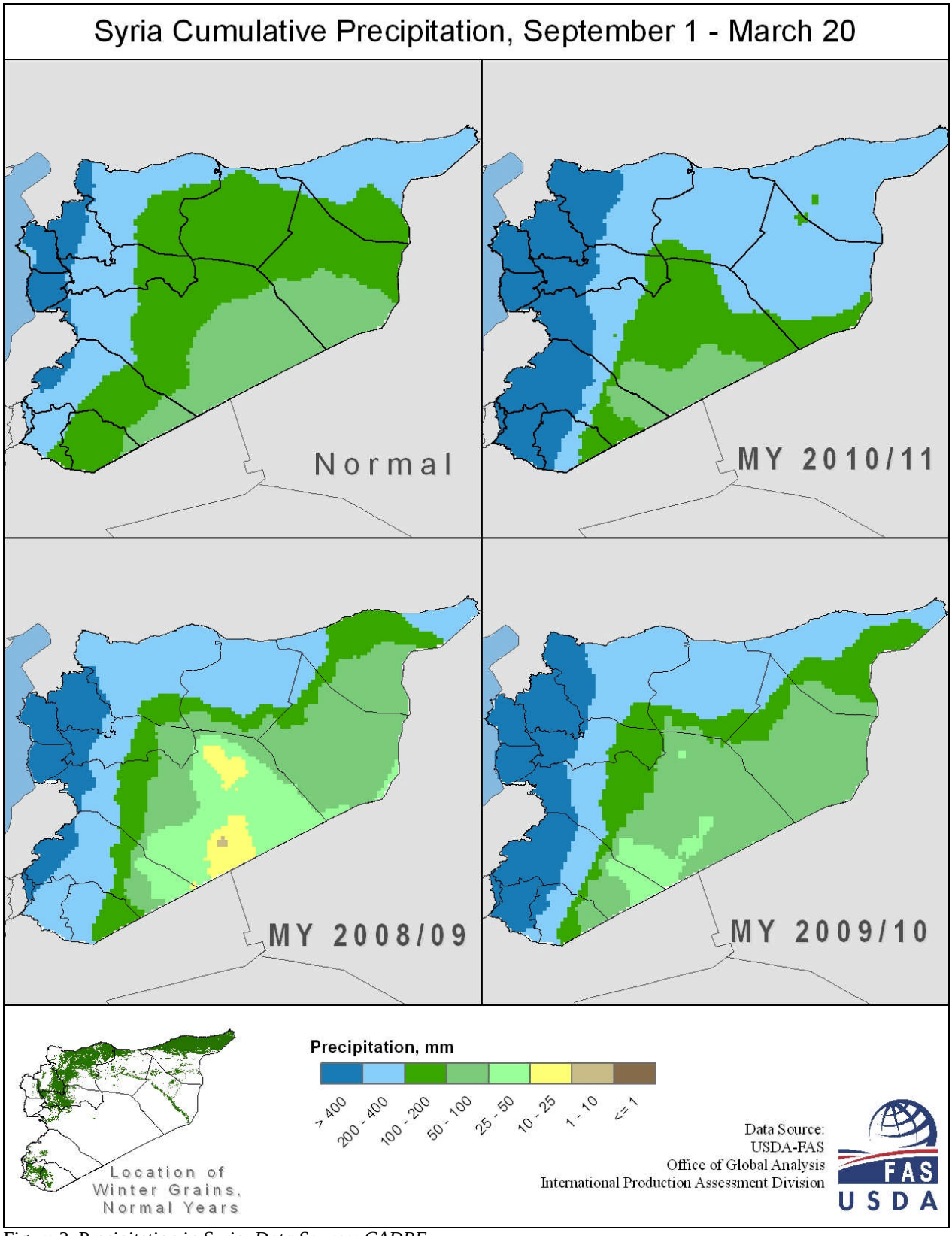

Figure 2. Precipitation in Syria. *Data Source: CADRE*

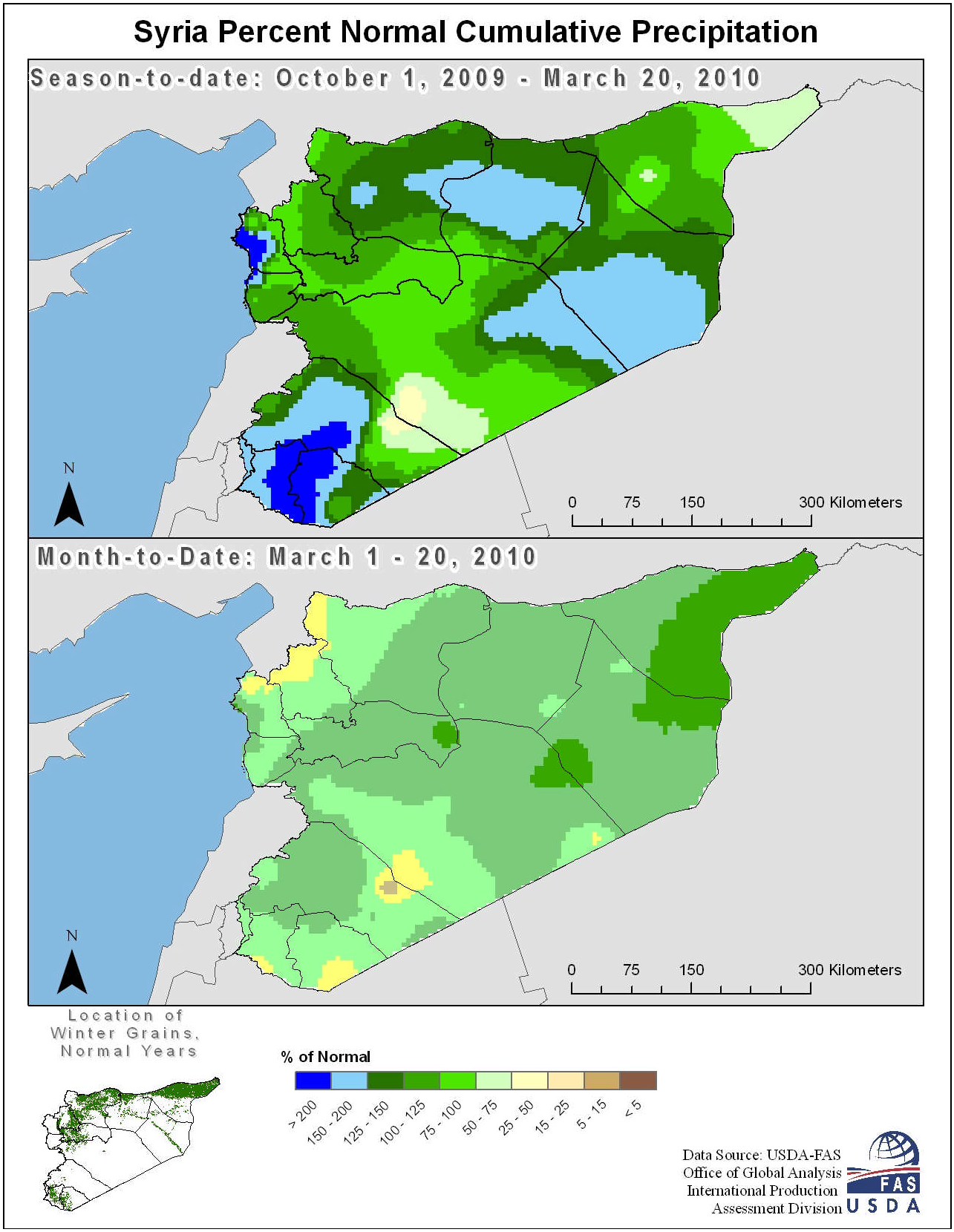

Figure 3. Percent Normal Cumulative Precipitation over Syria. *Source: CADRE AFWA.*

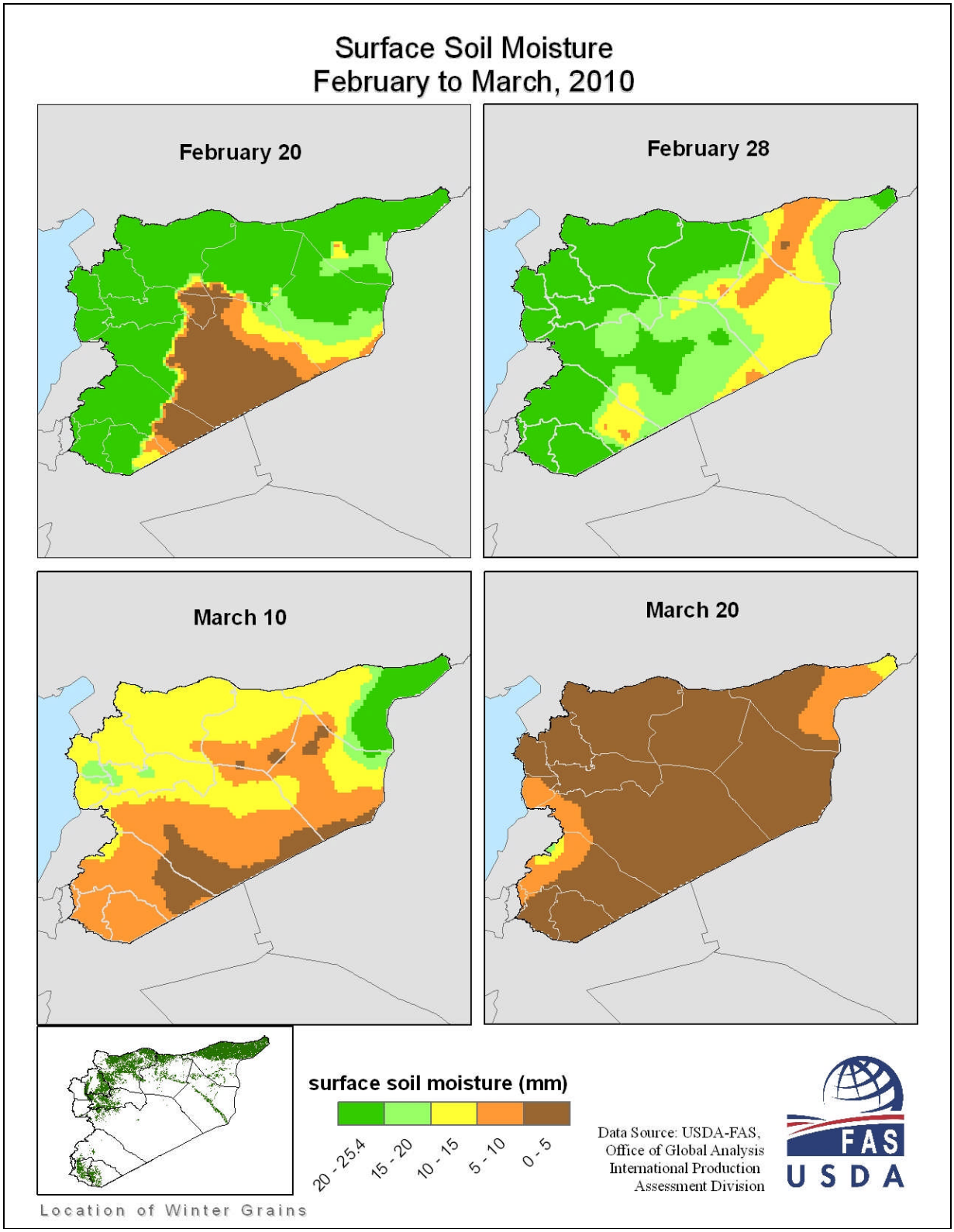

Figure 4. Surface Soil Moisture in Syria. *Data Source: CADRE*

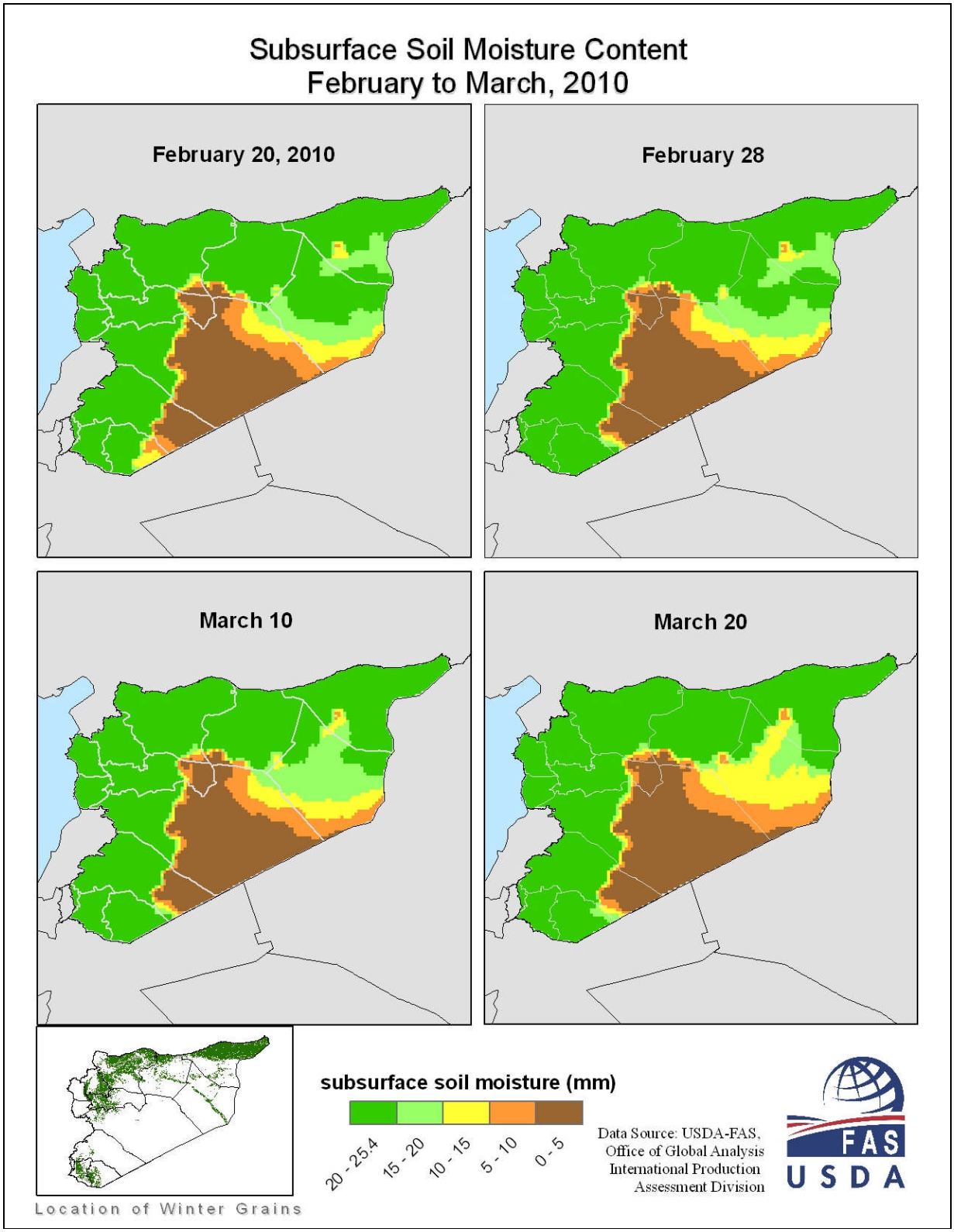

Figure 5. Subsurface Soil Moisture in Syria. *Data Source: CADRE*

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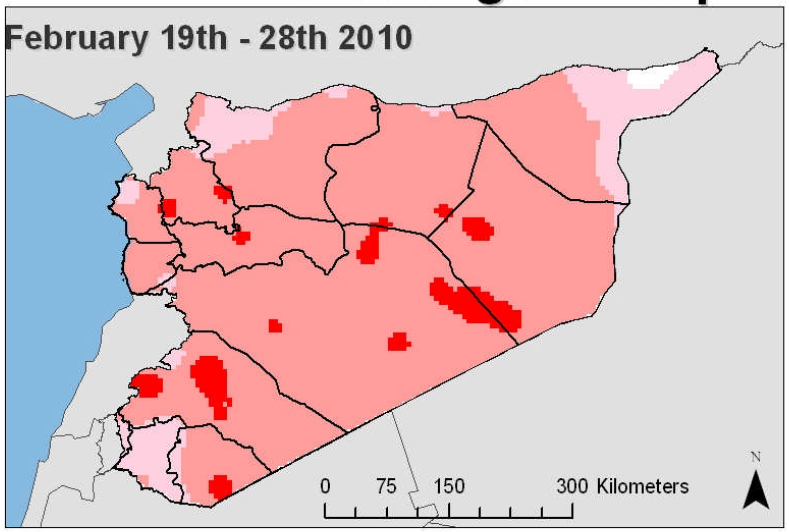
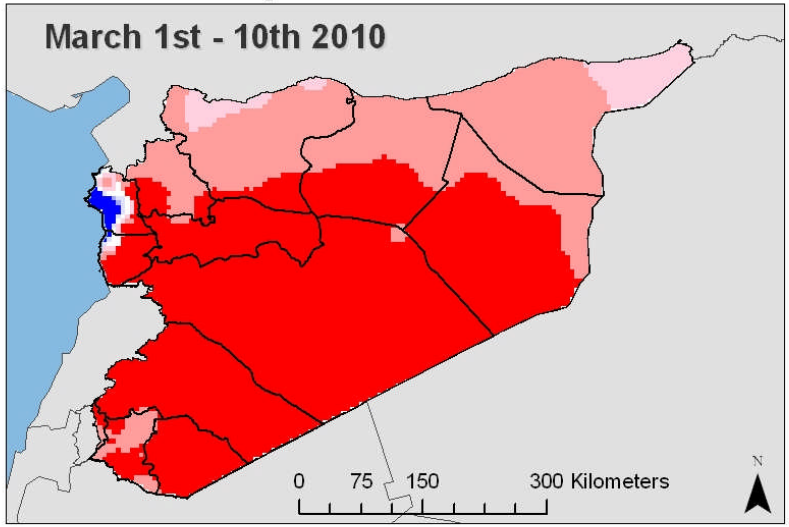
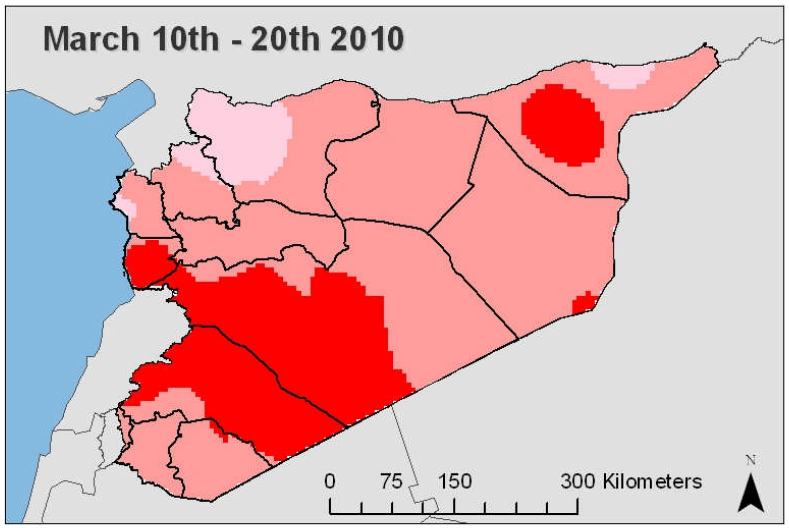
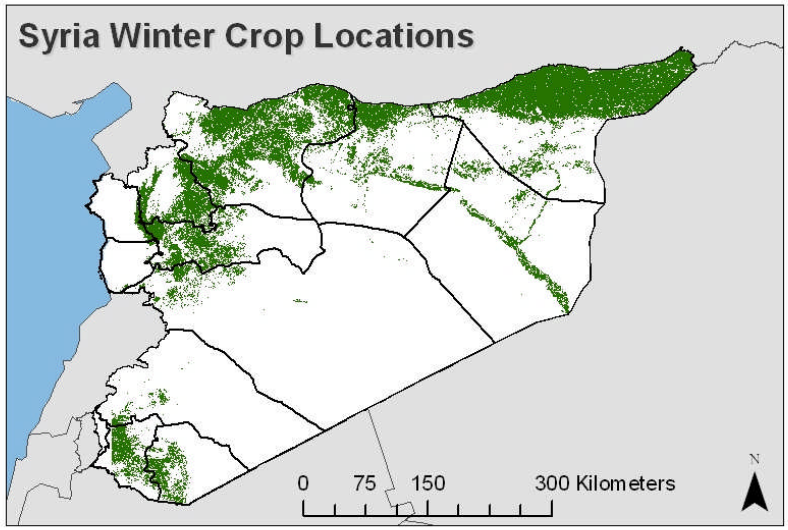
Average Temperature Departure









Data Source: CADRE
International Production Assessment Division
USDA/FAS/Office of Global Analysis
Produced on [March 22th 2010]

FAS USDA

Figure 6. Temperature Departure from Normal. *Data Source: CADRE.*

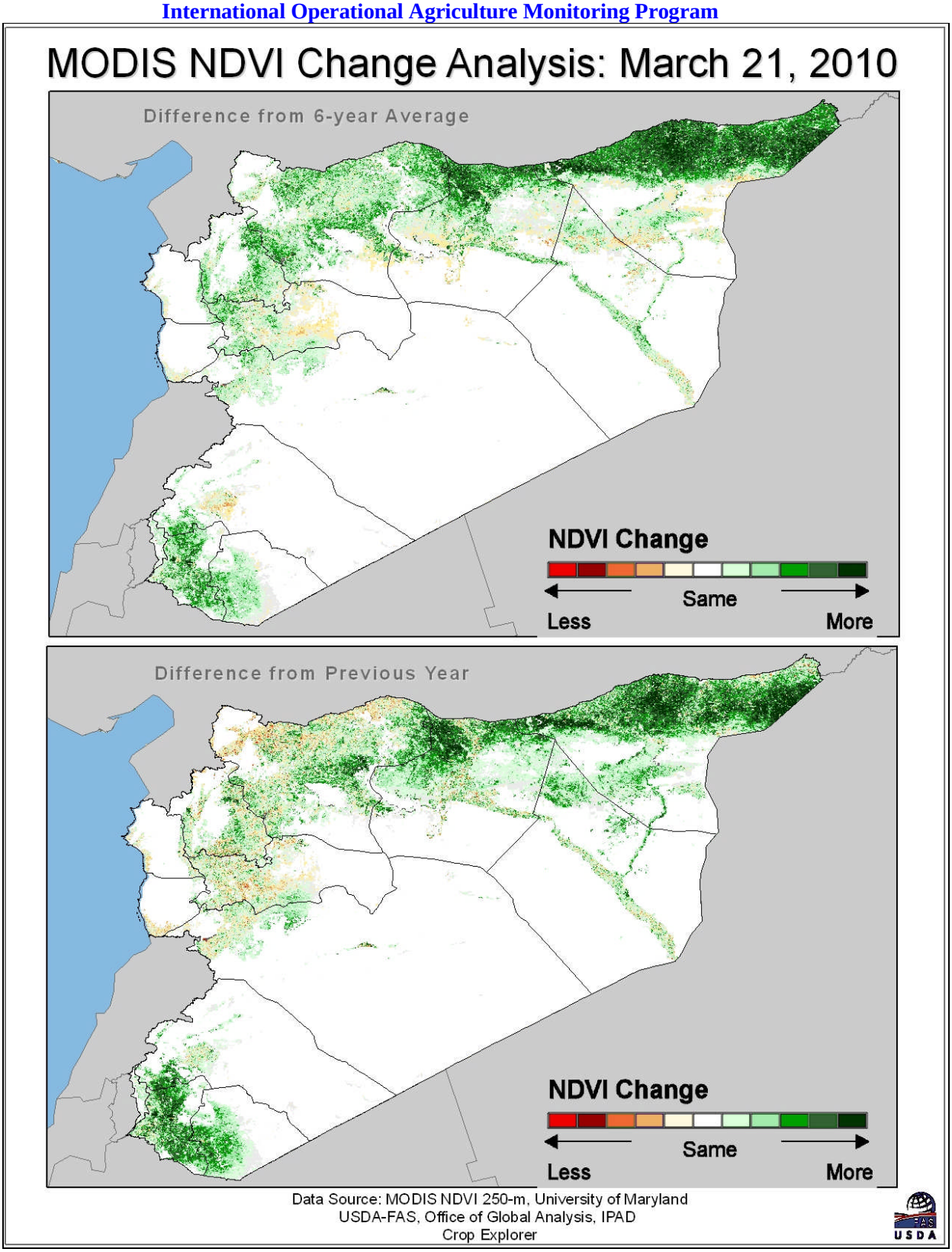


Figure 7. MODIS NDVI Change Analysis over Syria.

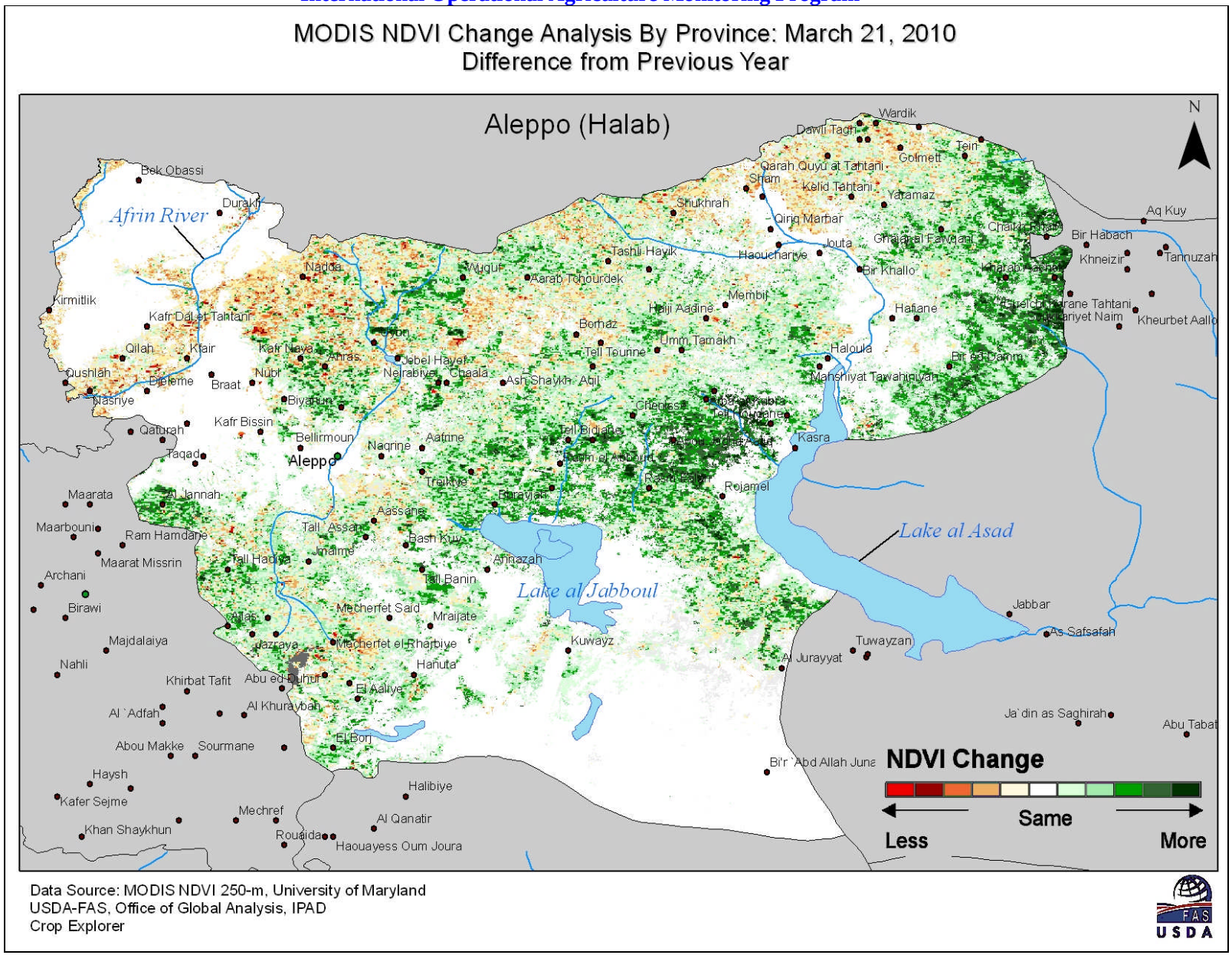


Figure 8. MODIS NDVI Change Analysis over Halab.

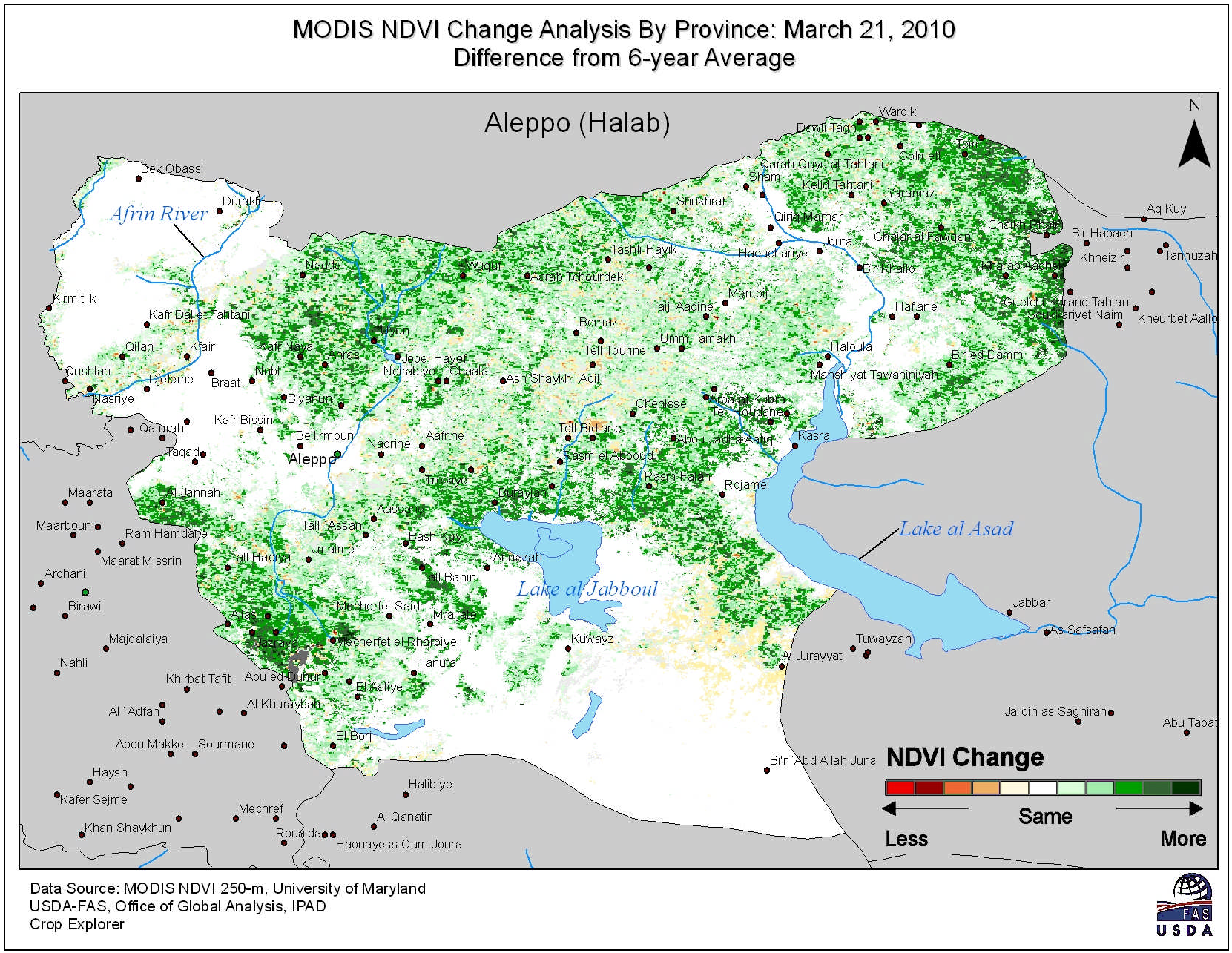


Figure 9. MODS NDVI Change Analysis over Halab.

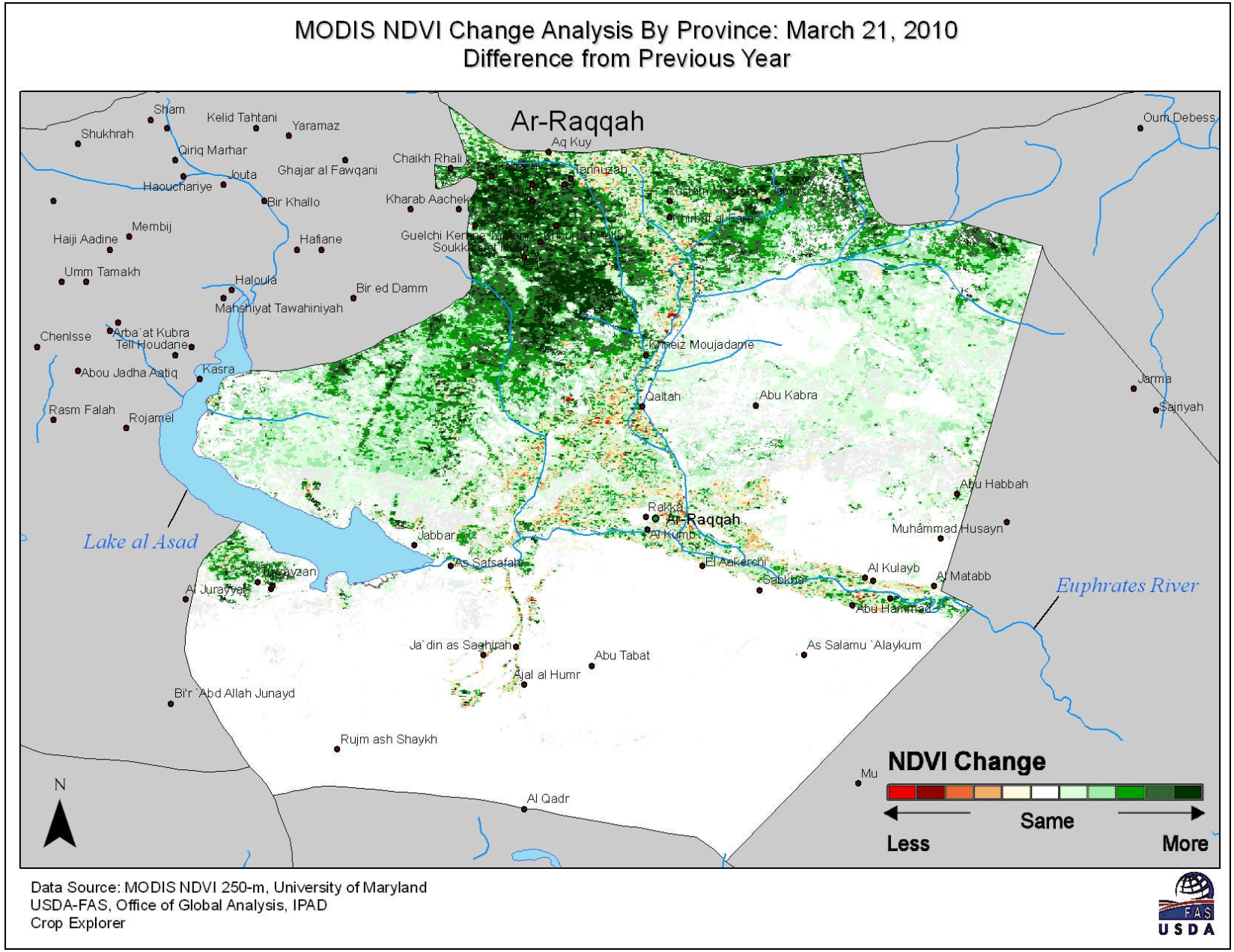


Figure 10. MODIS NDVI Change Analysis over Ar-Raqqah.

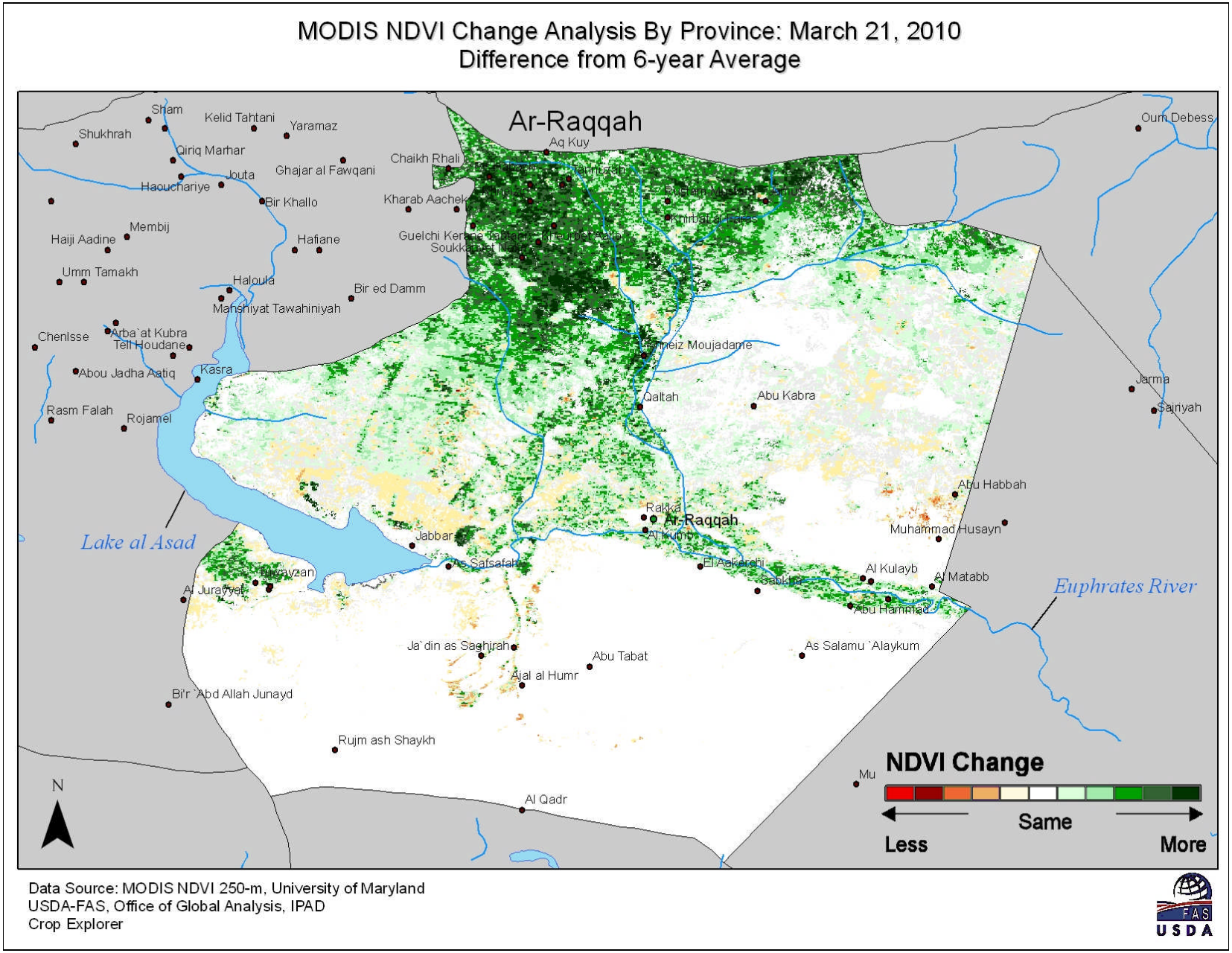


Figure 11. MODIS NDVI Change Analysis over Ar-Raqqah.

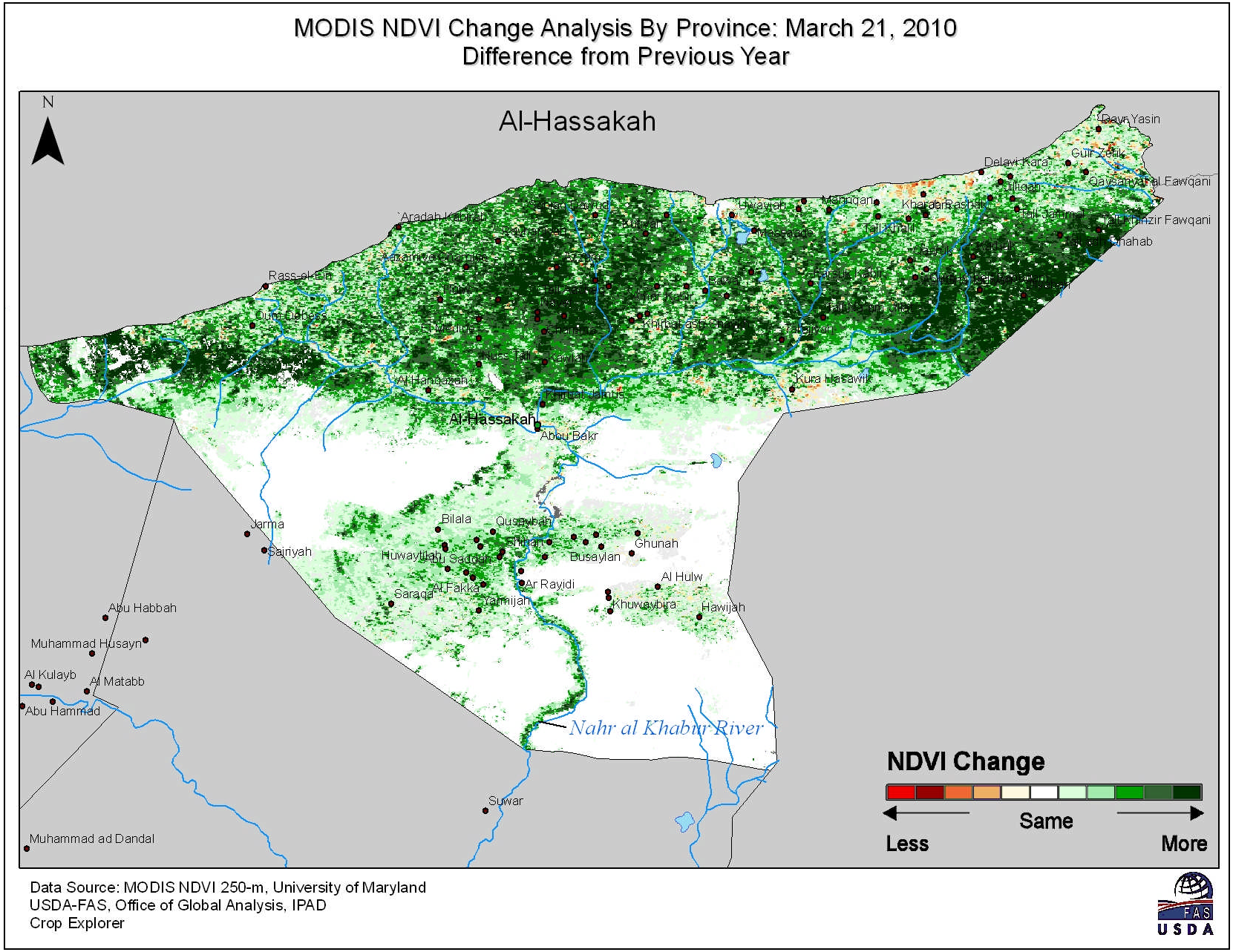


Figure 12. MODIS NDVI Change Analysis over Al-Hassakah.

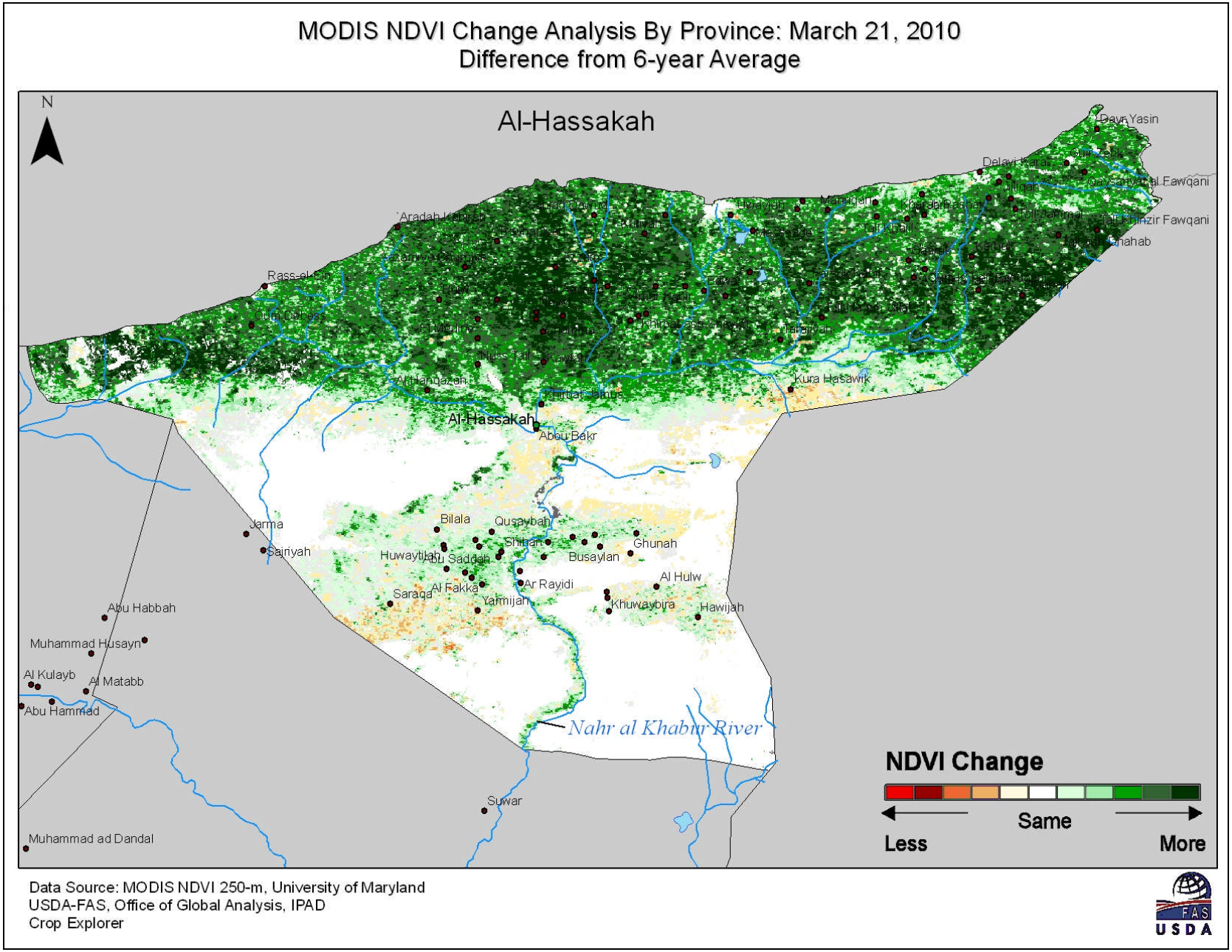


Figure 13. MODIS NDVI Change Analysis over Al-Hassakah.

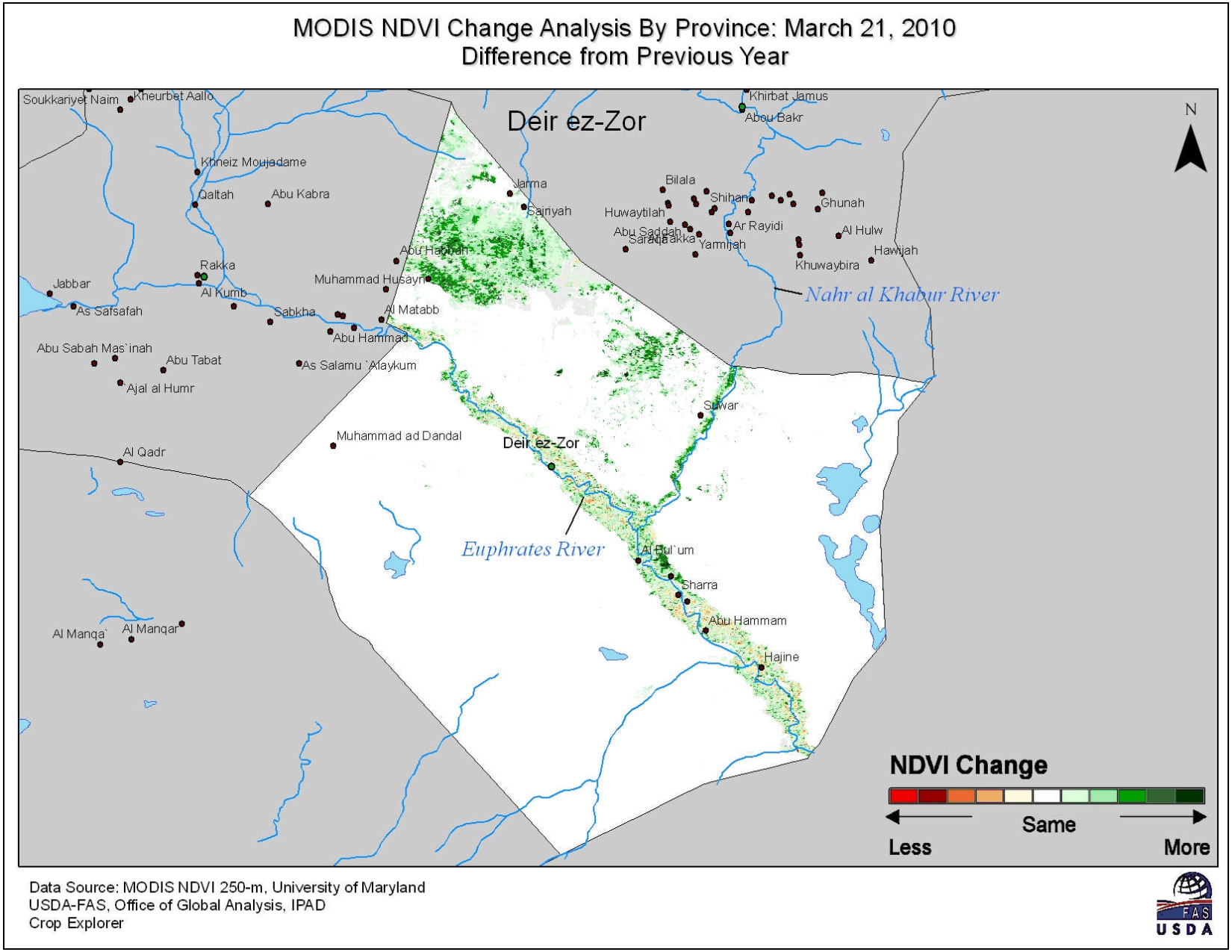


Figure 14. MODIS NDVI Change Analysis over Deir ez-Zor.

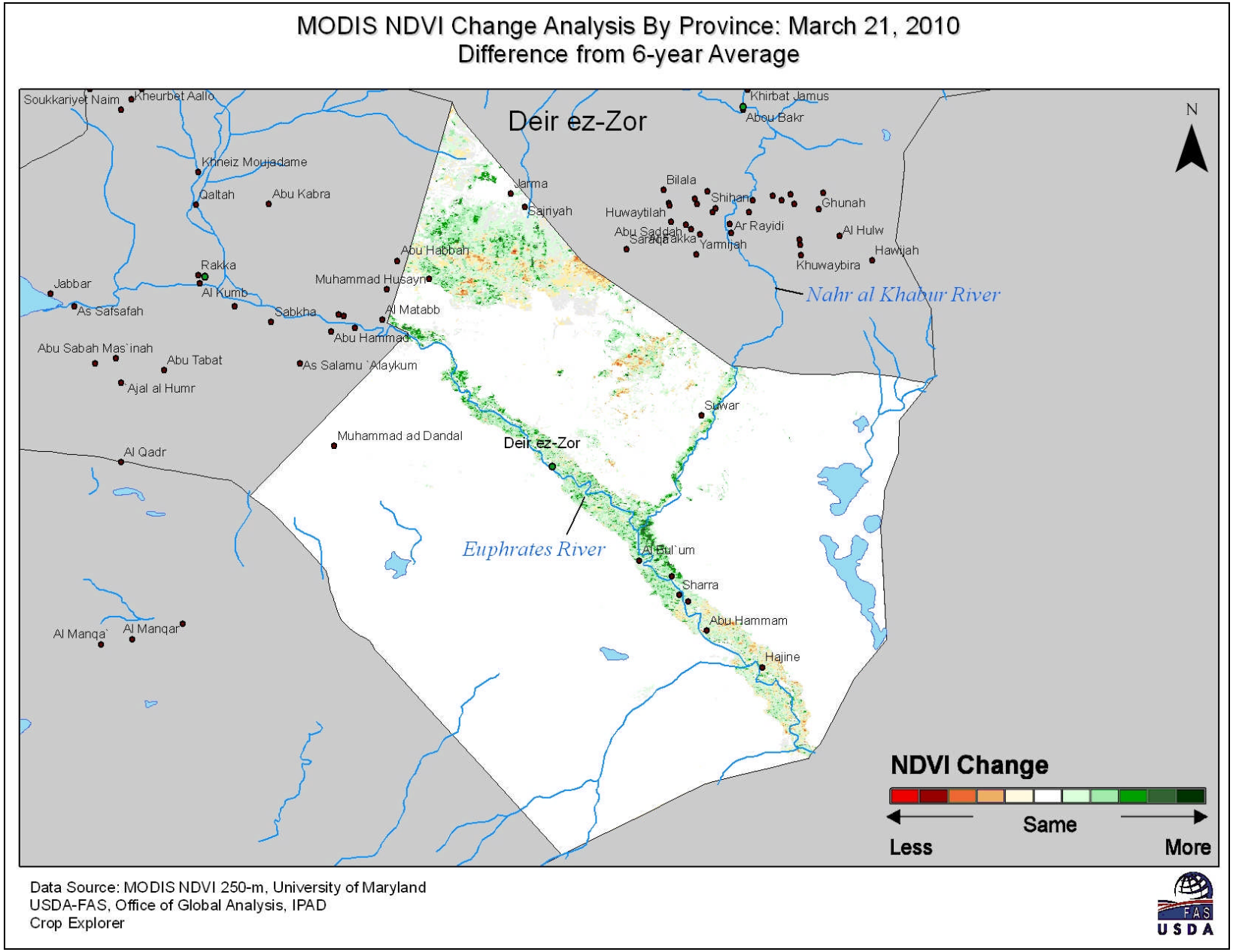


Figure 15. MODIS NDVI Change Analysis over Deir ez-Zor.

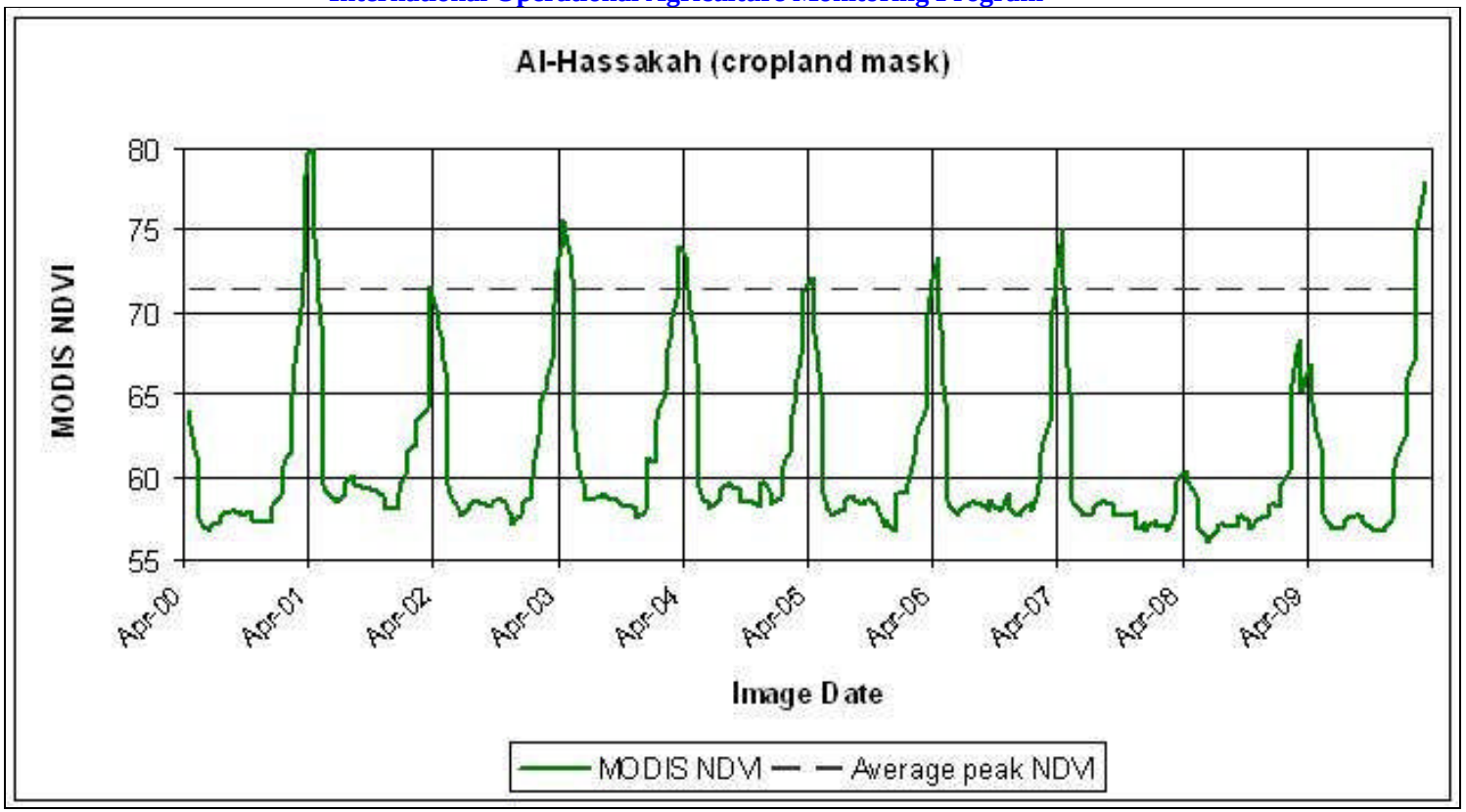


Figure 16. NDVI Graph of Al-Hassakah Province. *Data Source: USDA/FAS*

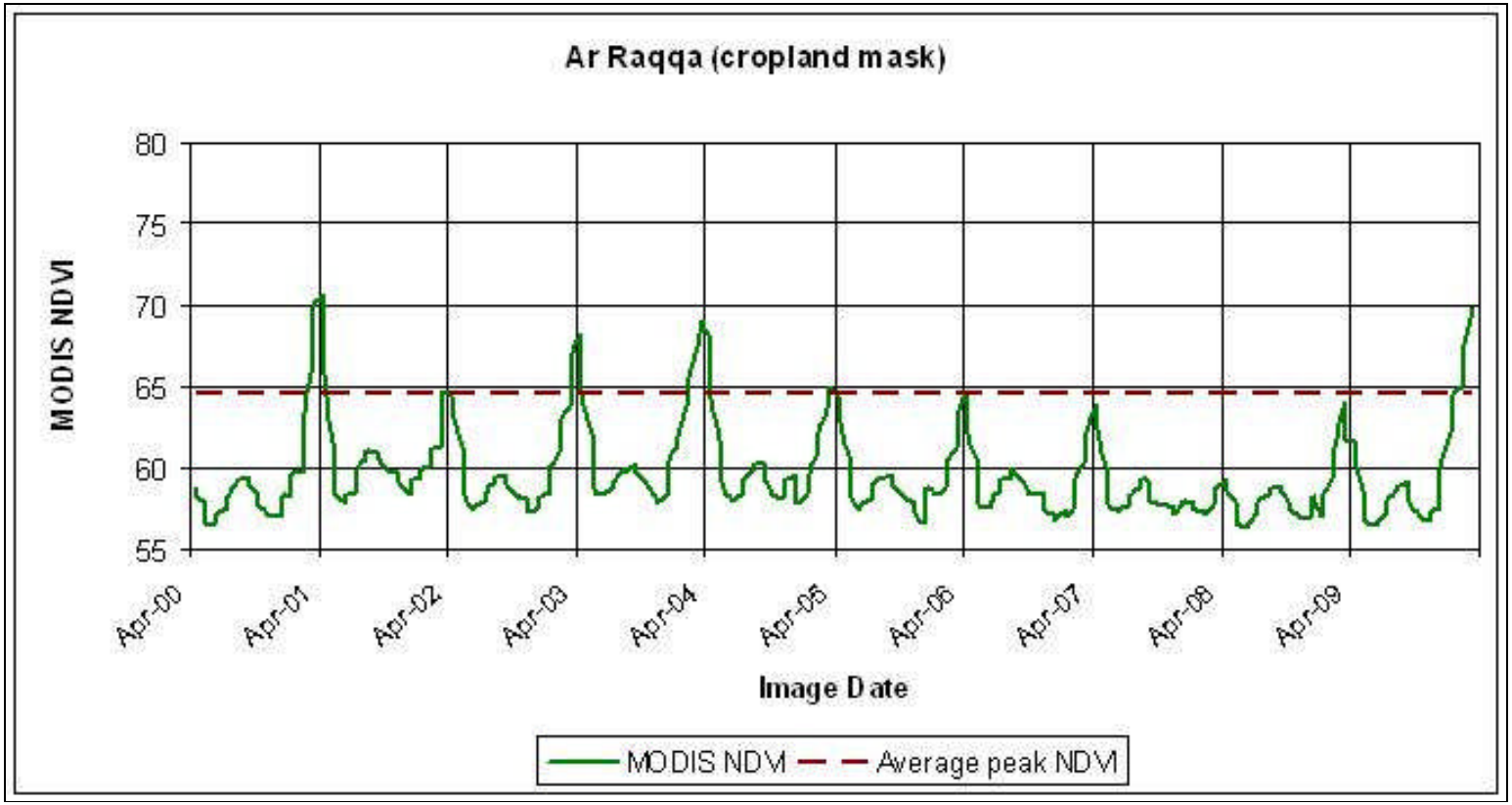


Figure 17. NDVI Graph of Ar Raqqah Provine. *Data Source: USDA/FAS*

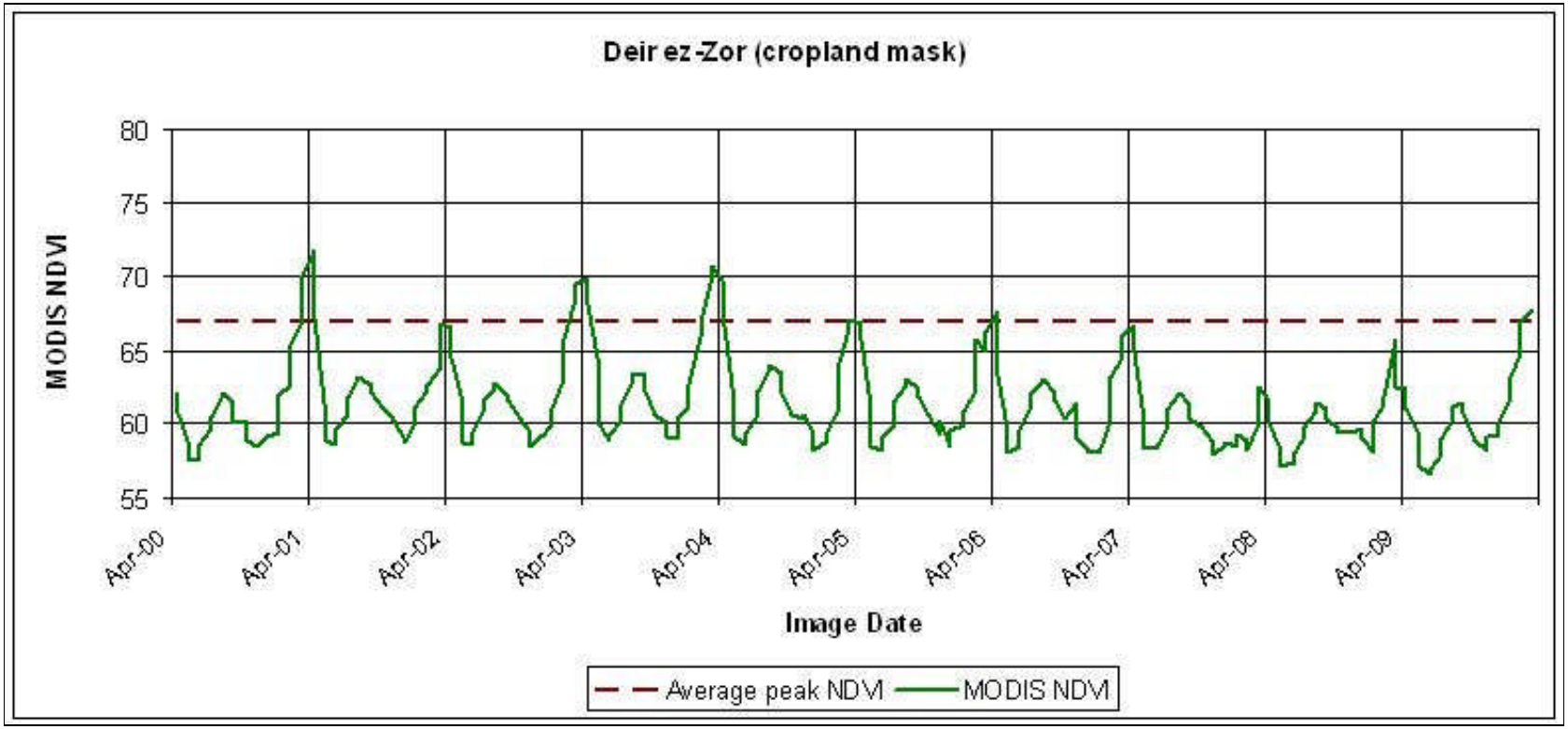


Figure 18. NDVI Graph of Deir ez-Zor Province. *Data Source: USDA/FAS*

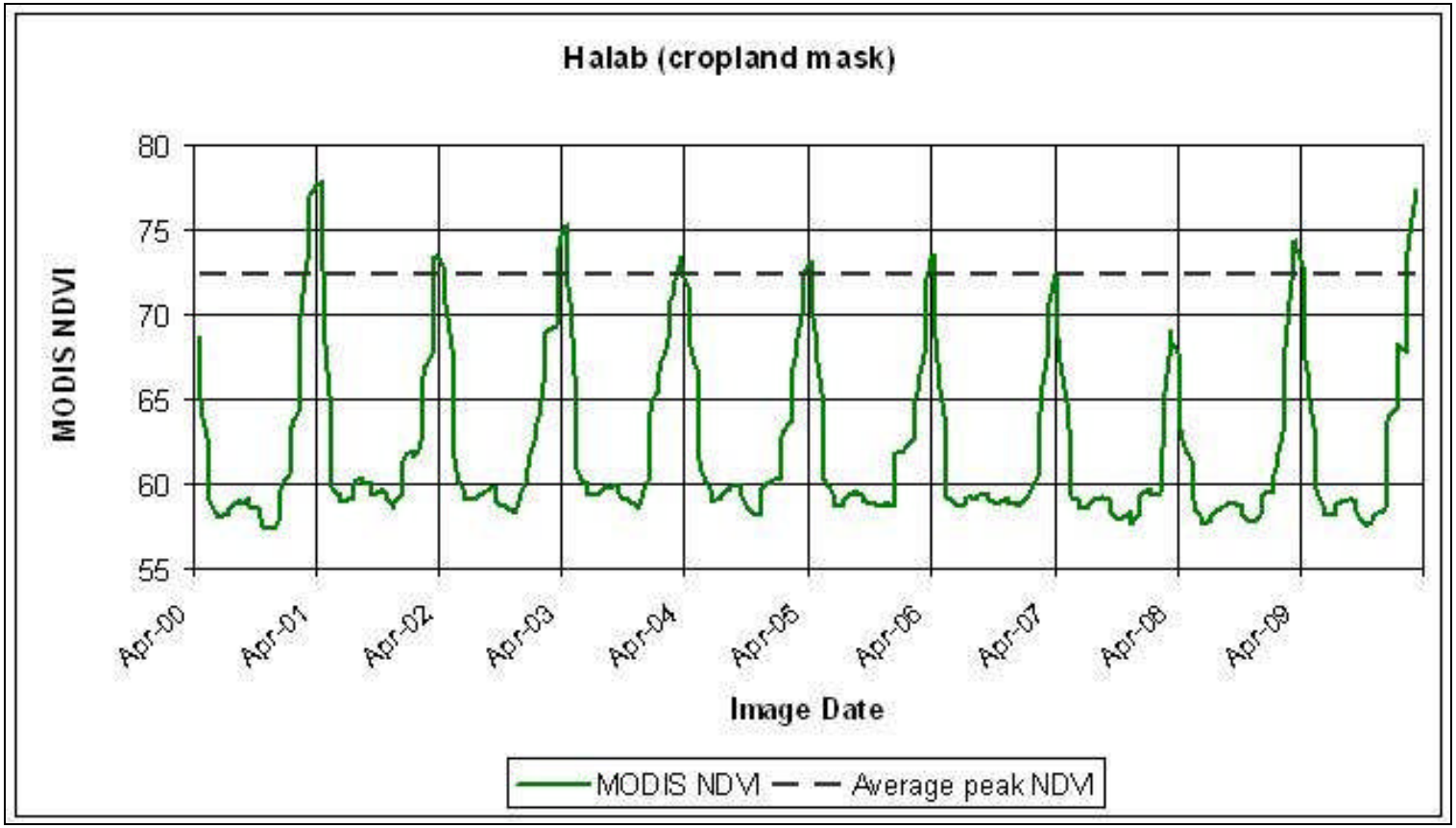


Figure 19. NDVI of Halab (Aleppo) Province. *Data Source: USDA/FAS*

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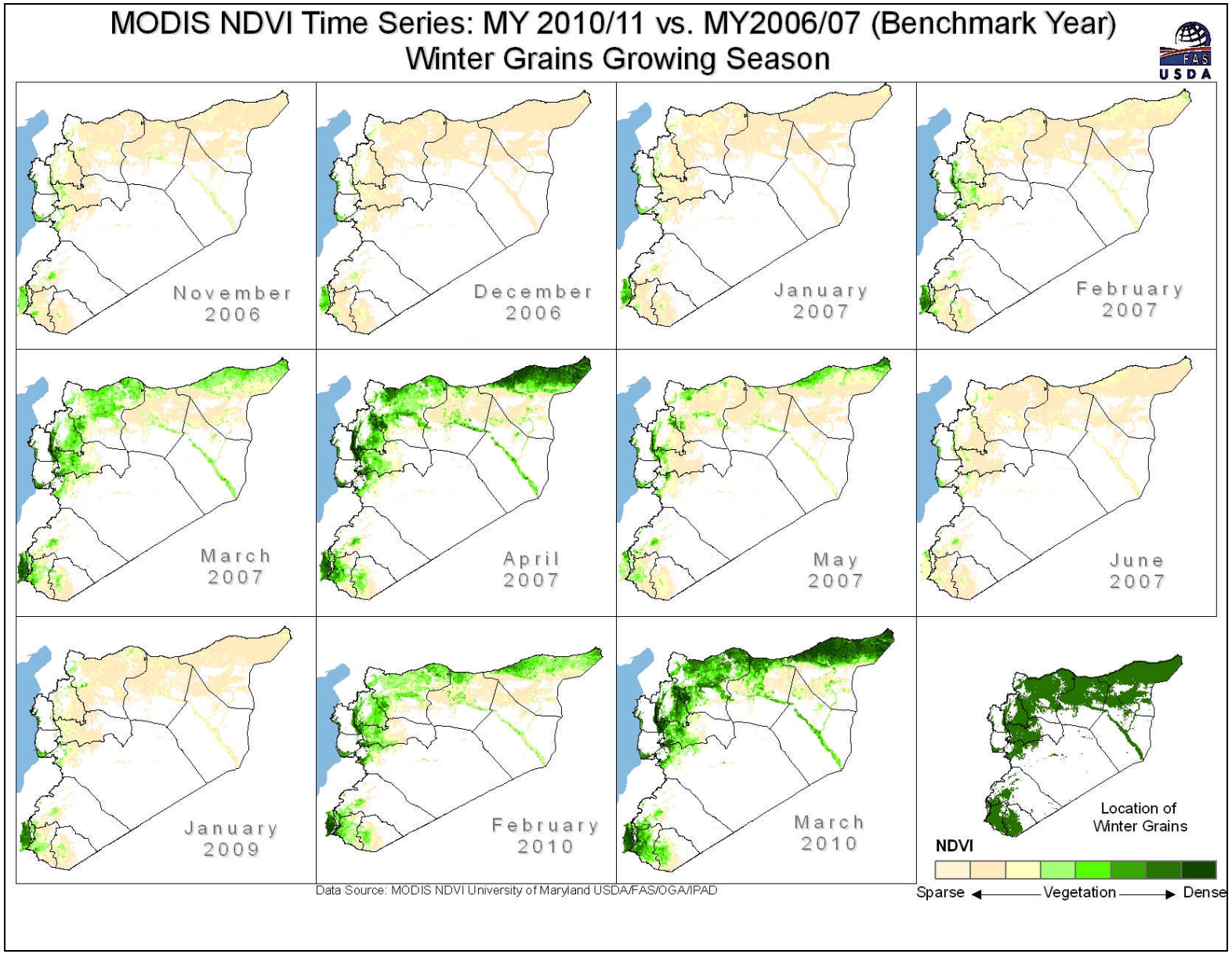

Figure 20. MODIS NDVI Time Series: MY 2010/11 vs. MY 2006/07 (Benchmark Year) Winter Grains Growing Season.

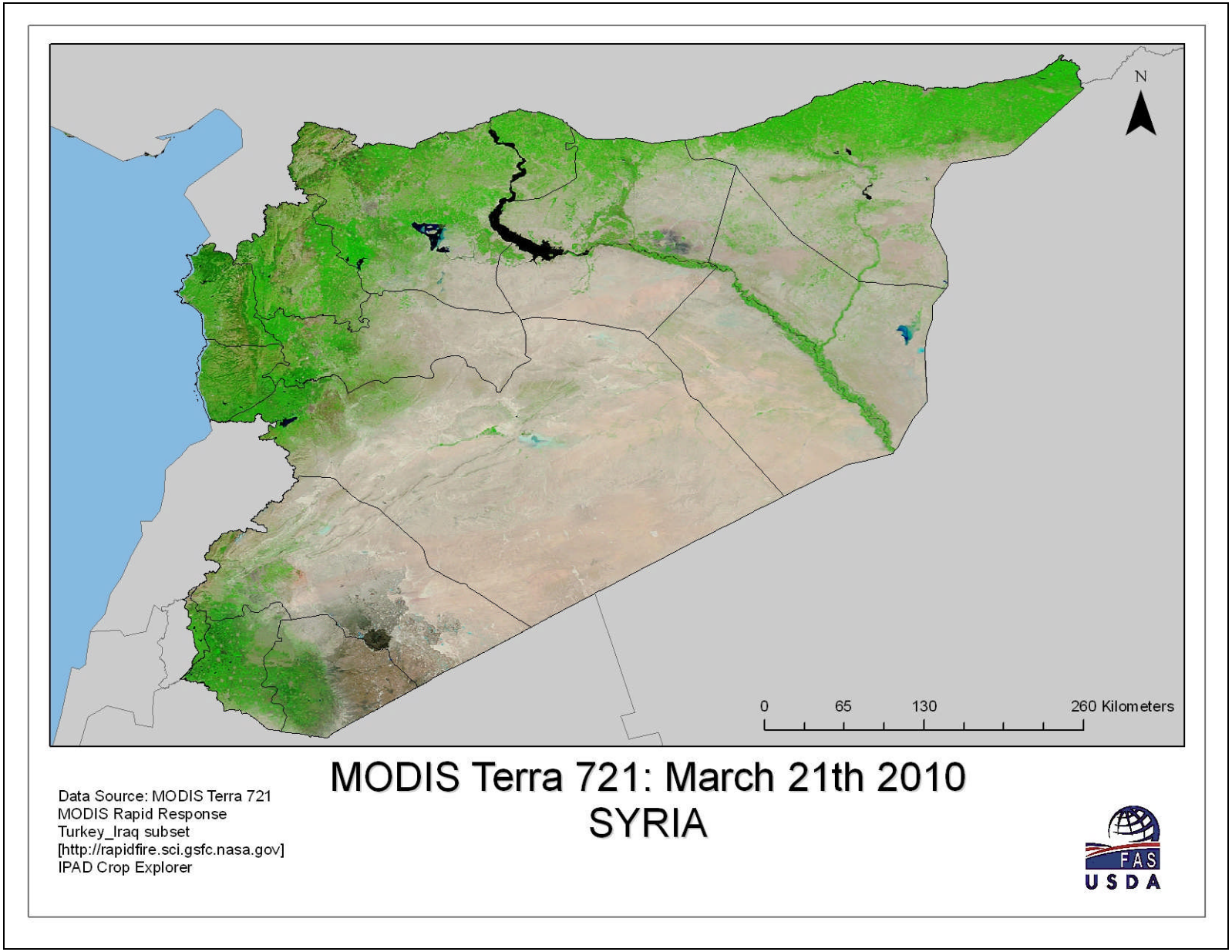

Figure 21. MODIS Terra 721 Imagery. *Data Source: MODIS Rapid Response*

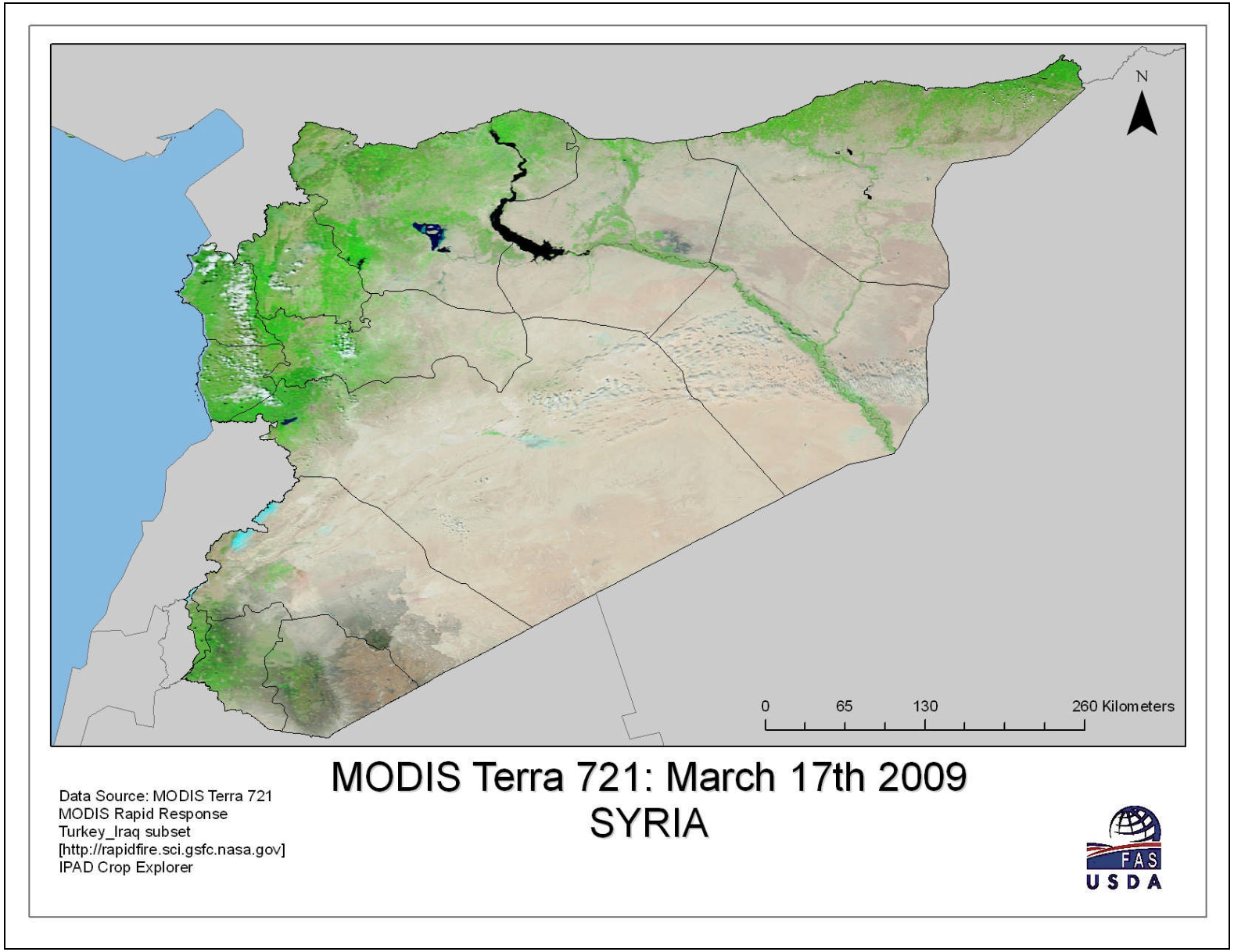

Figure 22. MODIS Terra 721 Imagery. *Data Source: MODIS Rapid Response*

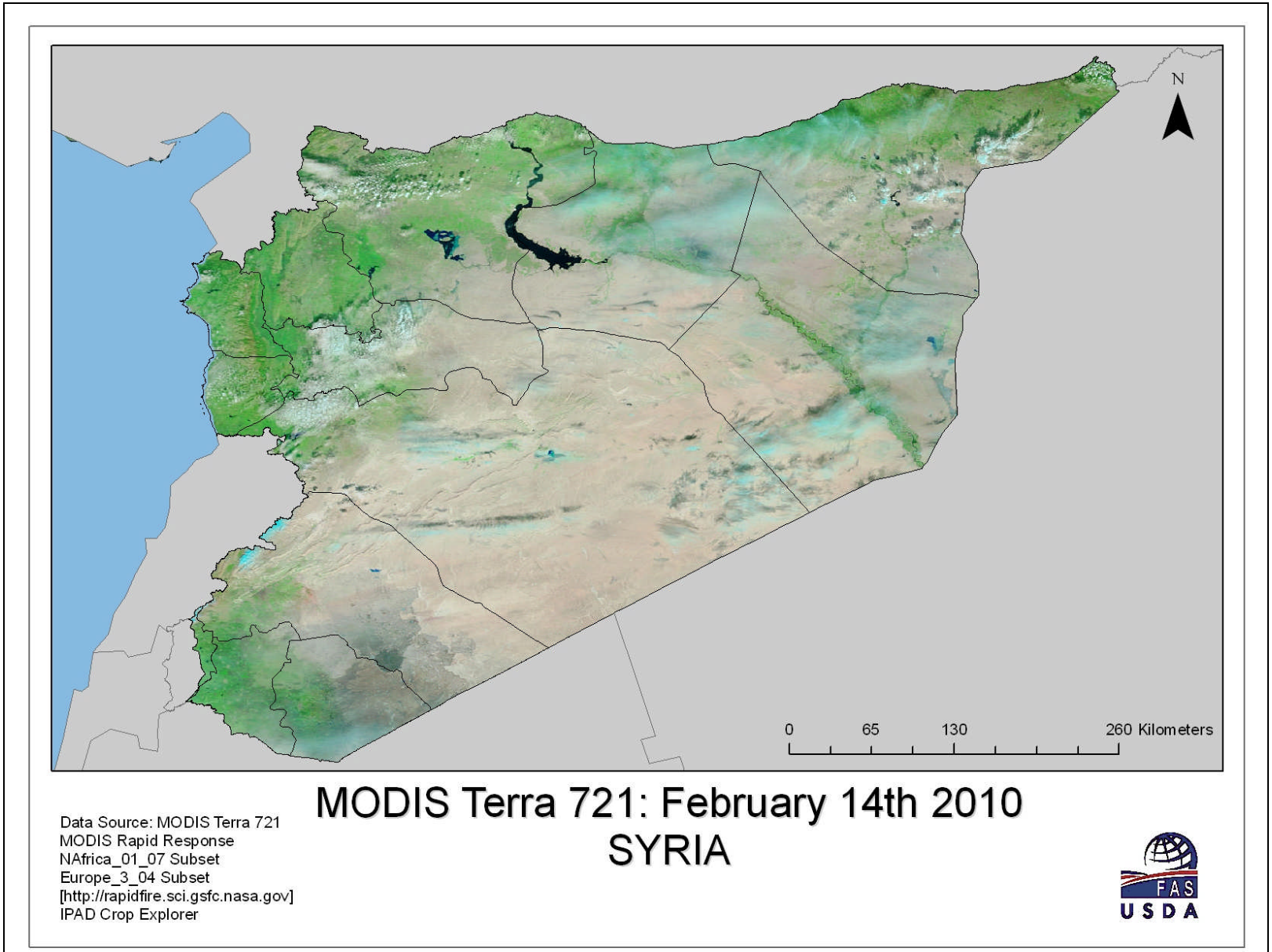

Figure 23. MODIS Terra 721 Imagery. *Data Source: MODIS Rapid Response*

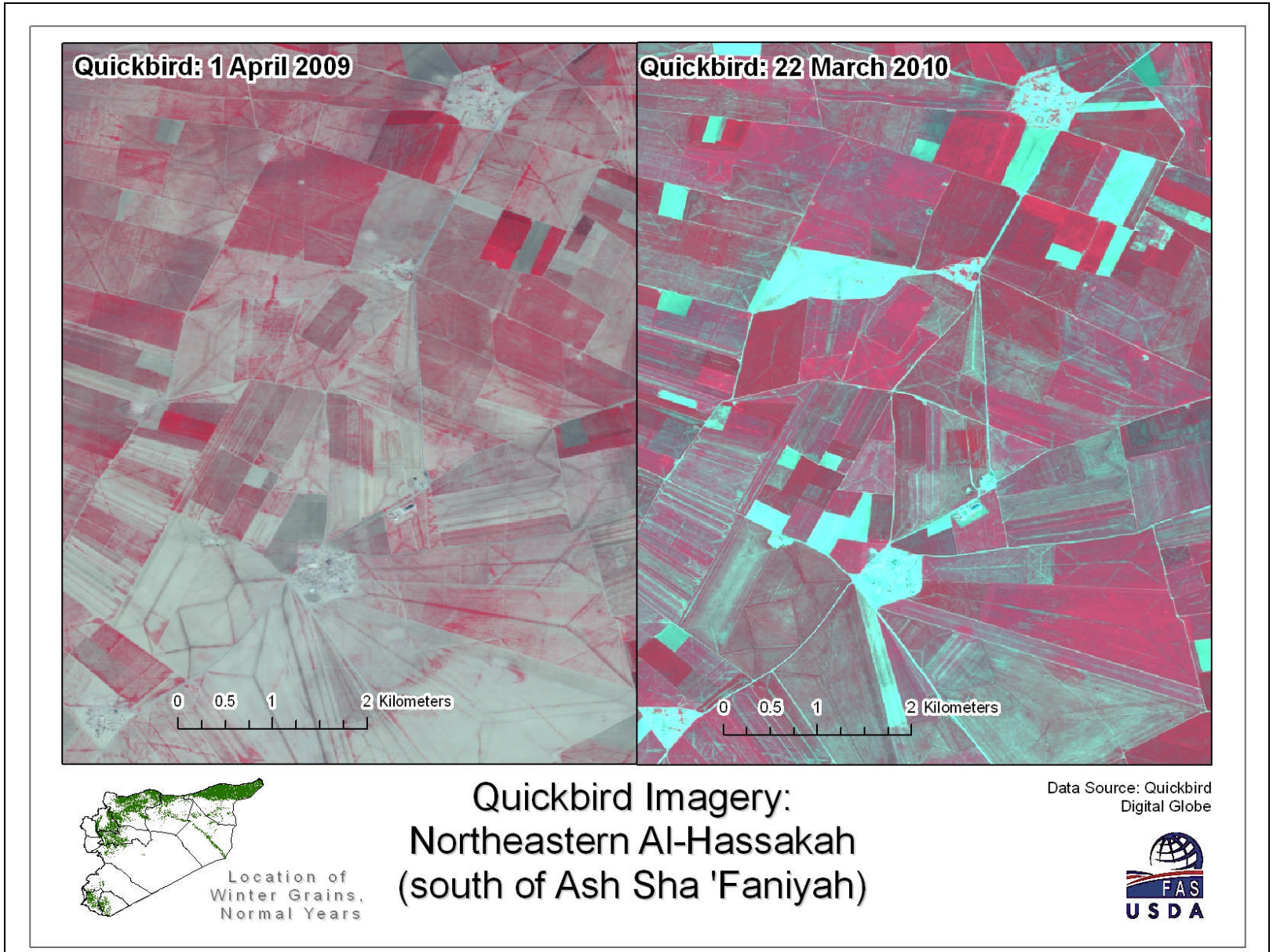

Figure 24. Digital Globe Quickbird Imagery over Syria. *Data Source: USDA/FAS*

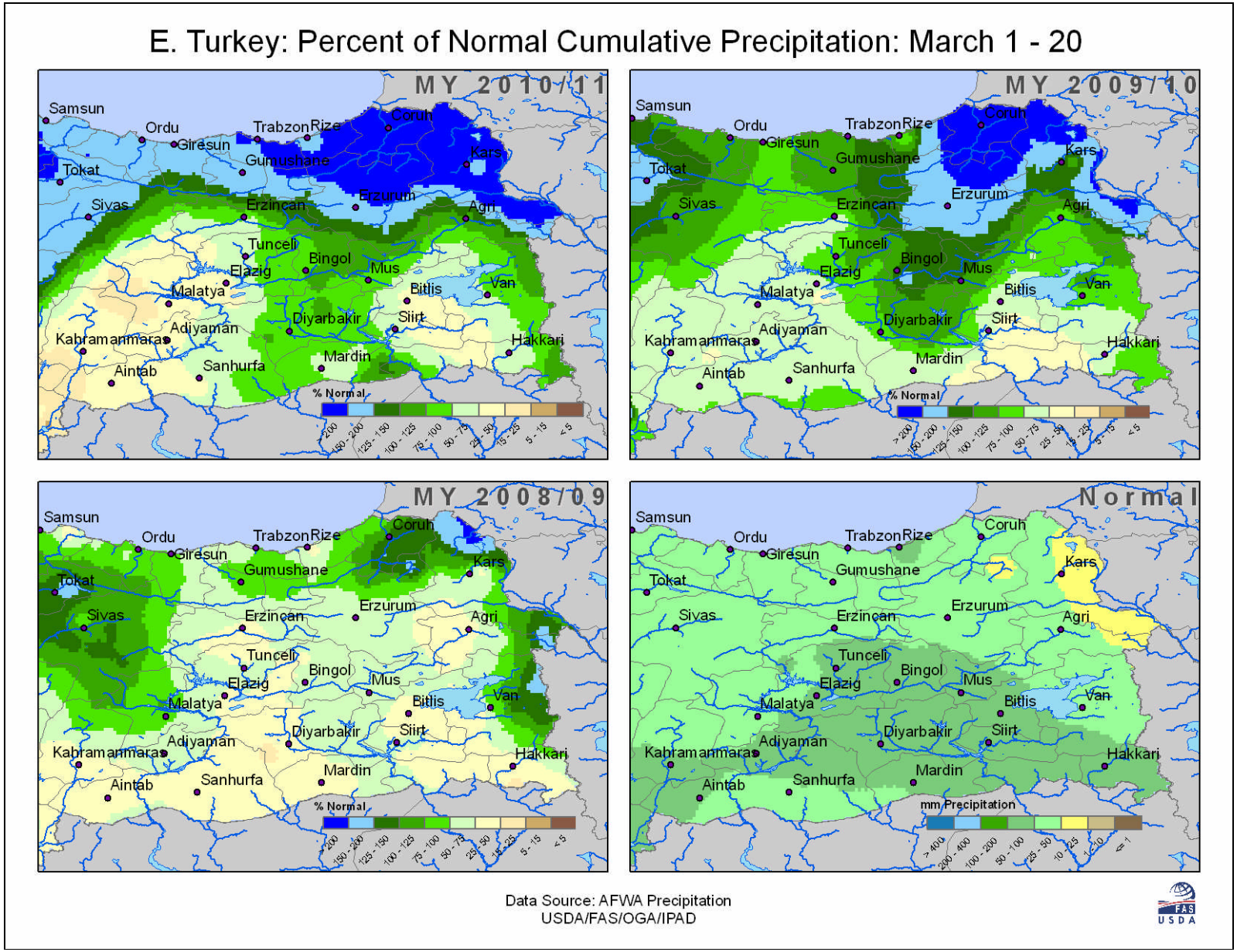

Figure 25. Rainfall in Turkey contributing moisture to irrigated crops in Syria.

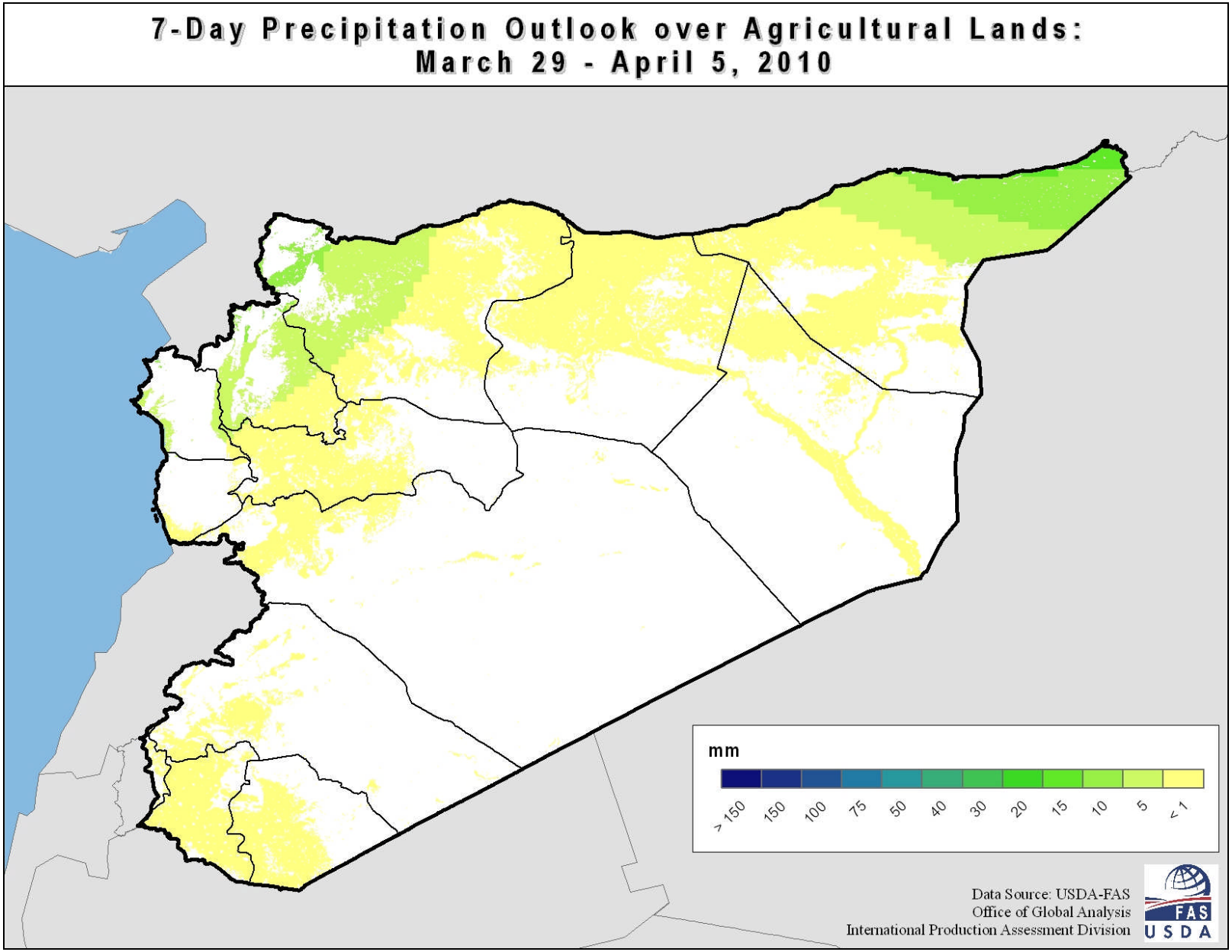

Figure 26. NOAA CPC 7-day Precipitation Forecast over Syria.

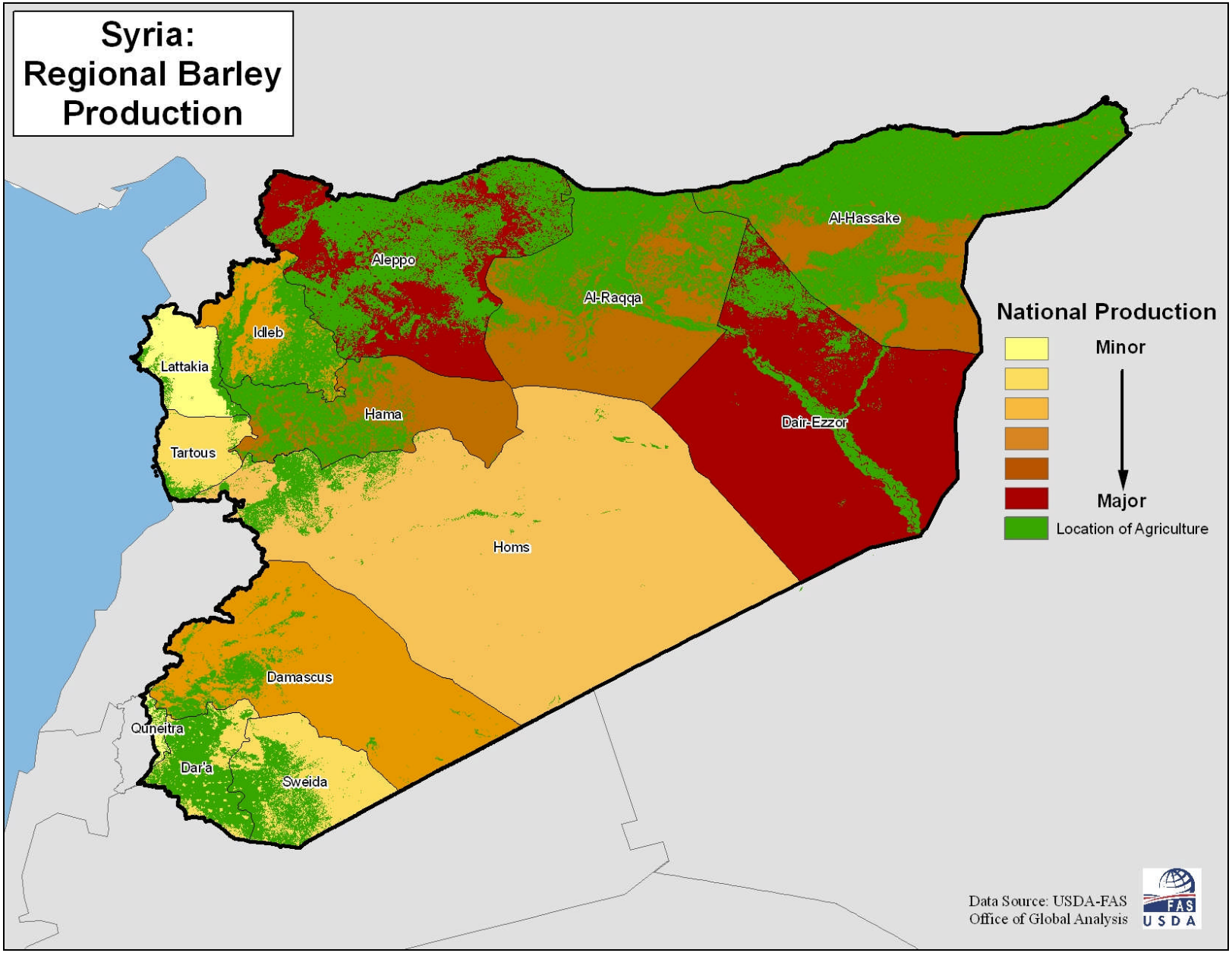

Figure 27. Barley Production in Syria.

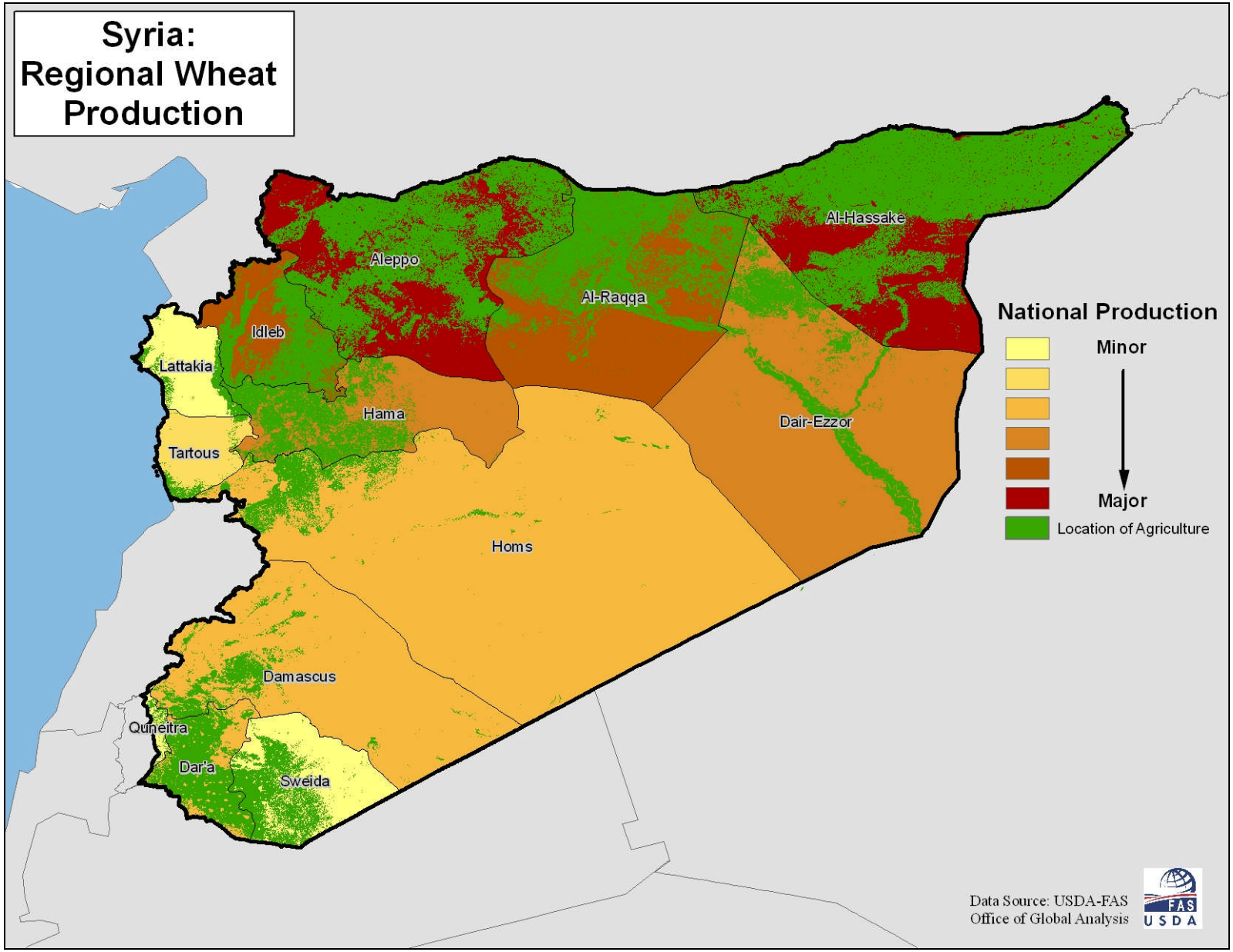

Figure 28. Wheat Production in Syria.